

REMARKS

Reconsideration and withdrawal of the rejections of the claimed invention is respectfully requested in view of the amendments, remarks and enclosures herewith, which place the application in condition for allowance.

I. STATUS OF CLAIMS AND FORMAL MATTERS

Claims 1-8 and 18-20 are pending in this application. Claims 1-8 and 18-20 are currently under examination. Claim 1 has been amended to cancel step (b1) and add temperature ranges for steps (b) and (c). Support for the temperature range of steps (b) and (c) can be found in the specification, e.g., in paragraph [0087] and [0091] – paragraph numbers refer to U.S. Patent Application Publication 2006-0004198, i.e. the publication of the application. Claims 9-17 were withdrawn from consideration and in order to expedite prosecution, these claims have been cancelled (the applicants reserve the right to further pursue the subject matter of the cancelled claims in a divisional application). New claim 20 is directed to a specific sulfonylurea final product.

No new matter has been added by this amendment.

It is submitted that the claims, herewith and as originally presented, are patentably distinct over the prior art cited in the Office Action, and that these claims were in full compliance with the requirements of 35 U.S.C. § 112.

II. THE 35 U.S.C. 112, 1st PARAGRAPH REJECTION HAS BEEN OVERCOME

Claims 1-8, 18 and 19 were rejected as allegedly lacking enablement for the full scope of the claimed invention. The applicants request reconsideration of this rejection for the following reasons.

It was presumed that the rejection for lack of enablement was based on the scope of solvates formed in step (b2) of claim 1 rather than solvate formation itself as the latter is well known in the art not only from the West teaching provided by the Examiner, but in any number of documents related to solid state chemistry, e.g. Bryn et al., *Solid-State Chemistry of Drugs (2nd Edition)*, SSCI Inc., pgs. 3, 12, 13 (1999).

In order to advance prosecution, the applicants have amended claim 1 to indicate that an aprotic polar solvent is used in the conversion of the compound of formula (III) to the compound of formula (V) and the solvate formed is the result of this aprotic polar solvent. As such, the

claimed process is fully enabled for the claimed solvate formed. (Applicants reserve the right to pursue the scope of original claim 1 in a continuation application).

III. THE 35 U.S.C. 103(a) REJECTION HAS BEEN OVERCOME

Claims 1-8, 18 and 19 were rejected as allegedly being obvious over Vermehren et al. (DE 199 463 41 (U.S. Patent 7,026,477) - "Vermehren") in view of Stubbs et al. (American Medical Journal, 50, pp. 193-204, 1913 - "Stubbs").

Claims 1-8, 18 and 19 were rejected as allegedly being obvious over Vermehren et al. (DC 199 463 41 (U.S. Patent 7,026,477) - "Vermehren") in view of Koike et al. (US 4,211,723 - "Koike"). As these rejections are essentially duplicative in nature, they are addressed collectively below.

Both rejections acknowledges that Vermehren differs in not teaching the step (a) of the instant process which require reaction of acid halide with RQH to form an ester. The Stubbs and Koike references are presented to address this deficiency of the Vermehren reference. However, no mention is made of an additional difference between Vermehren and the applicants' claimed process, i.e. step (b2) of claim 1 describes forming the compound of formula (V) by converting the compound of formula (III) with a cyanate.

In order to expedite prosecution, the applicants have cancelled old step (b1) from claim 1 and old step (b2) is now the only (b) step. Neither the combination of Vermehren and Stubbs nor Vermehren and Koike teach the process of amended claim 1 and therefore claim 1 is unobvious over the combination of these references. (The applicants reserve the right to prosecute the subject matter of unamended claim 1 in a continuation application).

The applicants are concurrently filing with this response an IDS which includes a citation to EP 759 431. In addition to having the "wrong" substitution pattern on the phenyl ring for the final product (1,2,3 substitution in the '431 patent vs. 1,2,4 substitution in the present claims), the applicants provide a declaration by Dr. Mark Ford ("the Ford declaration") which shows the difference in results when the reaction conditions of the '431 patent are applied to a phenyl with 1,2,4 substitution vs. an example within the applicants' claimed temperature ranges.

As can be seen in the Ford declaration, practicing steps (b) and (c) at room temperature did NOT produce a sulfonylurea, but rather a sulfonamide which is not claimed as the final

product in applicants' claim 1. In contrast, practicing step (b) at 20°C followed by step (c) at 55-60° resulted in the desired sulfonylurea compound.

Therefore, the '431 patent does not render the applicants' claimed invention to be obvious because it does not teach the proper phenyl substitution pattern in their final product and at best would direct one of ordinary skill in the art to produce 1,2,4-substituted sulfonamides NOT sulfonylureas.

(Note: MPEP 2144.04 states that "...if the facts in a prior legal decision are sufficiently similar to those in an application under examination, the examiner may use the rationale used by the court." The Office Action stated in support of the obviousness rejection that "[i]t has been held that application of an old process to an analogous material to obtain a result consistent with the teachings of the art would have been obvious to one having ordinary skill. Note *In re Kerkhoven* 205 USPQ 1069."

Although the claims are not obvious over *Vermehren* and *Stubbs* or *Koike*, to the extent that above stated proposition by the Examiner may be used in a future Office Action related to this application (or is being relied upon in Office Actions of other applications), the applicants note that there is nothing within *Kerkhoven* which supports such a proposition in the majority's decision (a copy of the *In re Kerkhoven* rejection is attached to this response).

To the extent that *Kerkhoven* was related to the obviousness of a process claim, the Board *reversed* the Examiner's obviousness rejection ("We conclude that the problem of how to introduce more than one color into a detergent and the problem of how to improve the flow characteristics of a mixed-active detergent are quite remote. Mere knowledge that simultaneous spray-drying multiple slurries was a useful technique in the production of multi-colored detergents would not have suggested anything about the effect of simultaneous spray-drying slurries having different active detergent contents, one being primarily if not exclusively anionic in nature and the other being primarily if not exclusively nonionic in nature, on the flow characteristics of the final mixed-active product. Consequently, one skilled in this art, working at the time appellant's invention was made on the problem of how to obtain good flow characteristics in mixed-active spray-dried detergents without resort to partially pre-hydrated sodium tripolyphosphate builder, would not have been motivated or guided by the prior art to arrive at the process appellant is claiming in claim 5, that is, a process for making a mixed-active

detergent wherein the flow characteristic problem is solved by resort to the simultaneous spray-drying technique heretofore only used in the production of multi-colored detergents. For this reason, we hold that the process described in claim 5, considered *as a whole* as required by 35 USC 103, would not have been prima facie obvious to one skilled in the art at the time this invention was made. Cf. In re Sponnoble, 56 CCPA 823, 405 F.2d 578, 160 USPQ 237 (1969); In re Kuehl, 475 F.2d 658, 177 USPQ 250 (CCPA 1973).” *In re Kerkhoven*, 205 U.S.P.Q. 1069, 1073-1074 (CCPA 1980).

If a comment similar to that written by the Examiner in the Office Action can be attributed to *Kerkhoven*, it was not found in the majority’s decision.)

IV. THE OBVIOUSNESS-TYPE DOUBLE PATENTING REJECTION HAS BEEN OVERCOME

Claims 1-8, 18 and 19 have been provisionally rejected under obviousness-type double patenting over claims 1-20 of US Patent 7,026,477 in view of Stubbs et al.

Claims 1-8, 18 and 19 have been provisionally rejected under obviousness-type double patenting over claims 1-20 of US Patent 7,026,477 in view of Koike et al. (US 4,211,723 - “Koike”).

The applicants claims should not be rejected for obviousness-type double patenting for the reasons given in the obviousness rejection above for the corresponding rejections over Vermeiren and Stubbs or Vermeiren and Koike.

In addition, the applicants note that while secondary references are not precluded from use in an obviousness-type double patenting rejection, such usage is generally restricted to providing definition to claim terms or assisting in construing the claims, i.e. an obviousness-type double patenting rejection differs from an obviousness rejection under 103(a) in that the former is a claim to claim comparison of the claims under examination vs. the claims of the prior art.

However, this is not how the Stubbs and Koike references are being used here, i.e. they are being used to address differences with the Vermeiren reference and as such the proper basis for obviousness-type double patenting has not been established.

CONCLUSION

In view of the remarks and amendments herewith, the application is believed to be in condition for allowance. Favorable reconsideration of the application and prompt issuance of a Notice of Allowance are earnestly solicited. The undersigned looks forward to hearing favorably from the Examiner at an early date, and, the Examiner is invited to telephonically contact the undersigned to advance prosecution. The Commission is authorized to charge any fee occasioned by this paper, or credit any overpayment of such fees, to Deposit Account No. 50-0320.

Respectfully submitted,
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Attachments: Copy of *In re Kerkhoven* decision
Declaration by Dr. Mark Ford

In re Kerkhoven

626 F.2d 846

Cust. & Pat.App.

May 15, 1980 (Approx. 5 pages)

626 F.2d 846, 205 U.S.P.Q. 1069

In re Kerkhoven
Court of Customs and Patent Appeals
No. 79-586
Decided May 15, 1980

United States Patents Quarterly Headnotes

PATENTS

[1] Patentability -- Composition of matter (§ 51.30)

Patentability -- Invention -- Specific cases -- Chemical (§ 51.5093)

It is prima facie obvious to combine two compositions each of which is taught by prior art to be useful for same purpose in order to form third composition that is to be used for very same purpose; idea of combining them flows logically from their having been individually taught in prior art; thus, claims that require no more than mixing together of two conventional spray-dried detergents set forth prima facie obvious subject matter.

PATENTS

[2] Patentability -- Composition of matter (§ 51.30)

Patentability -- Evidence of -- Comparison with allowed claims or patents (§ 51.457)

Comparative test data that is not commensurate with claims' scope offered as evidence of superiority of claimed method does not rebut prima facie case of obviousness.

PATENTS

[3] Patentability -- Composition of matter (§ 51.30)

Patentability -- Invention -- In general (§ 51.501)

Patentability -- Invention -- Specific cases -- Chemical (§ 51.5093)

Patentability -- New use or function -- Nonanalogous art (§ 51.557)

Problem of how to introduce more than one color into detergent and problem of how to improve flow characteristics of mixed-active detergent are quite remote; mere knowledge that simultaneous spray-drying multiple slurries was useful technique in production of multi-colored detergents would not have suggested anything about effect of simultaneous spray-drying slurries having different active detergent contents, one being primarily if not exclusively anionic in nature and other being primarily if not exclusively nonionic in nature, on flow characteristics of final mixed-active product; claimed process, considered as a whole, as required by 35 U.S.C. 103, would not have been prima facie obvious to one skilled in art at time invention was made where one skilled in art working at that time on problem invention solved would not have been motivated or guided by prior art to arrive at claimed process.

PATENTS

Particular patents -- Detergent

Kerkhoven, Production of Detergent Compositions, rejection of claims 2-4, 9, and 14 affirmed; rejection of claim 5 reversed.

***1069** Appeal from Patent and Trademark Office Board of Appeals.

Application for patent of Frederik Johan Kerkhoven, Serial No. 501,956, filed Aug. 30, 1974.

From decision rejecting claims 2-5, ***1070** 9, and 14, applicant appeals. Modified; Miller, Judge,

with whom Markey, Chief Judge, joins, dissenting in part with opinion.

James J. Farrell, Edgewater, N.J., for appellant.

Joseph F. Nakamura (Gerald H. Bjorge, of counsel) for Commissioner of Patents and Trademarks.

Before Markey, Chief Judge, Rich, Baldwin, and Miller, Associate Judges, and Newman, [FN1] Judge.

Newman, Judge.

This is an appeal from the decision of the United States Patent and Trademark Office (PTO) Board of Appeals (board) sustaining the examiner's rejection under 35 USC 103 of claims 2-5, 9 and 14 of application serial No. 501,956, filed August 30, 1974, for "Production of Detergent Compositions." We modify.

Background

The Invention

Appellant claims a process for the production of particulate detergent compositions containing a mixture of anionic [FN1] and nonionic [FN2] active detergent materials. Appellant explains in his specification that the detergent-making art often prefers such detergents to achieve optimal detergent properties, and he notes that the most commonly used active detergent combination is a mixture of anionic fatty acid soaps, anionic synthetic non-soap detergents, and nonionic detergents. Detergents made from this combination of ingredients are called mixed-active detergents.

Appellant's invention is generic in the sense that it covers two separate and distinct methods of producing mixed-active particulate detergents, each method including the common step of forming at least two slurries [FN3] of detergent ingredients, the active detergent content of one slurry being primarily if not exclusively anionic in nature and the active detergent content of the other slurry being primarily if not exclusively nonionic in nature. Under one of these methods, the slurries are independently dried and the resulting products are mixed. Under the other method, the slurries are simultaneously dried and mixed.

Appealed claims 2-4, 9 and 14 are drafted broadly enough to cover both of these modes of operation. Claim 14 is illustrative:

14. A process for preparing a spray-dried detergent composition comprising by weight 5-80% of builders, 0-50% fillers and 5-60% of active detergent materials consisting essentially of a mixture of 20-80% by weight of anionic detergents of which 10-90% by weight is a fatty acid soap, and 80-20% by weight of nonionic detergents, which process comprises forming approximately equal proportions of at least two aqueous slurries A and B, slurry A being composed of a builder slurry incorporating therein an active detergent component consisting essentially of 60-100% by weight of anionic detergents and 0-40% by weight of nonionic detergents, slurry B being composed of a builder slurry incorporating therein an active detergent component consisting essentially of 0-40% by weight of anionic detergents and 60-100% by weight of nonionic detergents, treating said slurries as separate streams in at least on spray-drying equipment and collecting/mixing the dried products to form a homogeneous mixture of particulate material comprising said detergent composition.

Appealed claim 5, however, is limited to only the simultaneously dry and mix method. Claim 5 reads as follows:

5. A process according to claim 14, in which slurries A and B are spray-dried simultaneously in one spray-drying tower through separate nozzle systems, having points of entry on the tower at substantially equal height level of the tower.

According to appellant, the conventional manner of making mixed-active particulate detergents had been to mix all of the ingredients together in one slurry and then spray-dry the slurry. Appellant alleges that this single-slurry technique produces detergents having poor flow characteristics, whereas his multi-slurry methods produce detergents having excellent flow

characteristics.

To prove this, appellant conducted tests comparing the flow characteristics of detergents made by these processes. The results from these tests show that mixed-active *1071 detergents made according to both of the claimed multi-slurry methods had good flow characteristics. On the other hand, detergents comprising the same ingredients made by the above-described single-slurry process had poor flow characteristics. The tests, however, did not compare the flow characteristics of compositions containing partially prehydrated sodium tripolyphosphate builder.

The Prior Art

The PTO has cited the following references as prior art:

Coffey [FN4] describes a process for the production of mixed-active particulate detergents having good flow characteristics. Coffey uses a single slurry technique, i.e., all the ingredients are mixed together in one slurry which is then spray-dried. According to Coffey, his detergents have good flow characteristics because he includes in the slurry partially prehydrated sodium tripolyphosphate builder.

Cavataio [FN5] and Tofflemire [FN6] disclose processes for the production of multicolor particulate detergents. The multi-color effect is achieved by simultaneously spray-drying a natural colored detergent slurry and a colored detergent slurry through separate nozzles in the same spray-drying tower. In Tofflemire, the nozzles are at the same height in the tower.

Colgate [FN7] teaches mixed-active detergents having enhanced soil-suspending properties. The flow characteristics of these detergents are not discussed.

Ruff [FN8] discloses anionic spray-dried detergents and nonionic spray-dried detergents having tarnish inhibiting properties.

Examiner's Rejection

The examiner rejected all of the appealed claims under 35 USC 103 as unpatentable either over Cavataio in view of Colgate, Coffey, Ruff and Tofflemire, or over Colgate and Coffey in view of Cavataio, Ruff and Tofflemire. He explained that the claims require no more than the mixing of two conventional spray-dried detergent compositions, and concluded that the mere mixing of two compositions each taught for the same purpose, in the absence of a showing of unexpected results, is obvious. In support of this proposition, the examiner cited In re Crockett, 47 CCPA 1018, 279 F.2d 274, 126 USPQ 186 (1960).

The examiner determined that appellant had not demonstrated any unexpected advantage for the claimed process. He pointed out that although the claims encompass the use of prehydrated sodium tripolyphosphate builder, appellant had not shown that the product produced from his process was superior to that obtained from Coffey's process, when prehydrated sodium tripolyphosphate was used. The examiner also noted that appellant had not demonstrated that Colgate's product had poor flow characteristics.

In his original rejection, the examiner did not comment on the independent patentability of claim 5. However, in the examiner's Answer to appellant's brief before the board, the examiner acknowledged that claim 5 presented the additional issue of whether it would be obvious to spray dry the two compositions simultaneously in one tower through separate nozzles at an equal height level. The examiner concluded that this would have been obvious, reasoning: Appellant has neither argued nor demonstrated that this method of simultaneous spray drying in a single tower provides any unexpected results. Further, this process would be suggested by the teachings in Tofflemire and appellant's admission in the sentence bridging pages 27 and 28 of his brief that "given the long standing practice of spray drying with a multiplicity of nozzles, the possibility of introducing separate streams to any or all of these separate nozzles would be obvious to anyone of ordinary skill in the art". [Emphasis in original.]

Appellant responded to this point in his reply brief before the board with the following: The Examiner's arguments with respect to claim five, that applicant has *1072 admitted the possibility of introducing separate streams to any or all of separate nozzles as being obvious, does not relate to whether one skilled in the art would actually do such a thing without applicant's teaching. Indeed to argue the impossibility of introducing separate slurries to separate nozzles and spray drying them simultaneously would be fruitless.

Toffemire is directed to producing a multicolored particulate detergent and has nothing to do with combining two slurries such as applicant has claimed.

Board's Rejection

The board affirmed the examiner's rejection adding that in its opinion one skilled in this art, knowing that individual detergents or certain mixtures of detergents produce particles having good free-flow characteristics, would understand that the detergents desired in the final composition may be dried separately and then mixed. The board did not address the issue of the independent patentability of claim 5.

Appellant's Argument

Appellant contends that there is no suggestion in the prior art to split the active detergents into two specific slurries and spray-dry them either simultaneously to obtain a final product or separately and then mix them to obtain a final product. Therefore, appellant argues, no prima facie case of obviousness exists, and a showing of unexpected results is not required.

Appellant maintains that, as was the case in In re Sponnoble, 56 CCPA 823, 405 F.2d 578, 160 USPQ 237 (1969), appellant's invention here is the discovery of the source of a problem and the finding of a solution for that problem. Appellant points out that none of the cited references except Coffey recognized the problem here, and that Coffey employed a different route to solve it.

Appellant notes that claim 5 which calls for simultaneous spray-drying is even more remote from the examiner's references than the other appealed claims. Appellant submits that the process of claim 5 would not be performed by the mere mixing of two known spray-dried detergents.

Solicitor's Argument

The solicitor asserts that one of ordinary skill in the art -- faced with the problem of poorly flowing mixed-active detergents prepared by spray-drying one slurry containing all detergents, and armed with the knowledge that detergent compositions do not present such difficulties if the active detergent component is not a mixture of different active detergents -- would readily understand that the detergents desired in the final composition may be dried separately and then mixed. He submits that the problem and its source were known, and that the solution thereto claimed herein would have been obvious.

In his brief, the solicitor does not address the issue of the independent patentability of claim 5. When asked to comment on the rejection of claim 5 at oral argument, the solicitor stated that the basis for the PTO's case of obviousness for claim 5 was: (1) appellant's description of the prior art before the board, wherein appellant stated that Cavataio makes detergent compositions by spray drying two detergent slurries of different chemical composition simultaneously in a tower; (2) the disclosure in Toffemire that shows the feature of simultaneous spray-drying two slurries from the same height in a spray-drying tower; and (3) appellant's admission that simultaneous spray-drying of two detergent slurries was known.

Opinion

[1] It is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. In re Susi, 58 CCPA 1074, 1079-80, 440 F.2d 442, 445, 169 USPQ 423, 426 (1971); In re Crockett, 47 CCPA 1018, 1020-21, 279 F.2d 274, 276-77, 126 USPQ 186, 188 (1960). As this court explained in Crockett, the idea of combining them flows logically from their having been individually taught in the prior art. In the case at bar, appealed claims 2-4, 9 and 14 require no more than the mixing together of two conventional spray-dried detergents. Thus, these claims set forth prima facie obvious subject matter.

[2] The comparative test data offered by appellant as evidence of the superiority of this claimed method does not rebut the prima facie case of obviousness because it is not commensurate in scope with the claims. The claims are broad enough to cover multi-slurry-produced detergent compositions containing partially pre-hydrated sodium tripolyphosphate builder. Coffey teaches that single-slurry-produced detergent compositions containing this builder have good flow

characteristics. Appellant's attorney admits that appellant has not run any tests comparing his multi-slurry-produced *1073 detergent compositions containing this builder with Coffey's single-slurry-produced detergent compositions containing this builder. Thus, appellant has failed to prove the superiority of his multi-slurry technique over the prior art's single-slurry technique for the production of detergent compositions containing this builder. Having failed to do this, appellant has not proven the superiority of the multi-slurry technique over the single-slurry technique for all compositions covered by the claims.

Claim 5

In review of this application, the board lumped claim 5 together with the rest of appellant's claims. Appellant specifically objects to this treatment -- and we agree.

Claim 5 sets forth an alternative process for making a mixed-active spray-dried particulate detergent. Whereas the other claims on appeal include in their coverage the process of merely combining a known anionic spray-dried particulate detergent with a known nonionic spray-dried particulate detergent to form a mixed-active particulate detergent product, claim 5 is limited to the process of making a mixed-active particulate detergent product by simultaneously spray-drying through separate nozzle systems in one spray-drying tower one detergent slurry, having an active detergent content of 60-100% anionic and 0-40% nonionic, and another detergent slurry having an active detergent content of 60-100% nonionic and 0-40% anionic. Searching the references, we find no support for the PTO's prima facie case of obviousness for claim 5. Coffey, the only reference which describes a prior art method for obtaining good-flowing mixed-active particulate detergents, does not use simultaneous spray-drying, but rather teaches a single-slurry technique that requires partially pre-hydrated sodium tripolyphosphate builder. Coffey explains that it was an object of his invention "to enable the production of satisfactory detergent compositions comprising appreciable proportions of [nonionic active detergent ingredients]." According to Coffey, "it [had] not been readily possible, [prior to Coffey's invention], to make acceptable detergent compositions in powdered or granular form incorporating appreciable quantities of [nonionic active detergent ingredients], * * *, as such compositions [were] sticky and [had] poor flow properties rendering their production and packaging difficult and so making them unsatisfactory for commercial use." Coffey discloses, however, that under his invention: "Such compositions may be made with good flow properties and texture which are retained during storage, * * *." The "essential feature" of Coffey's method for making satisfactory mixed-active detergent compositions is the use of partially pre-hydrated sodium tripolyphosphate builder.

Unlike Coffey's method, appellant's process (claim 5) for making a mixed active detergent with good flow characteristics does not rely on partially pre-hydrated sodium tripolyphosphate builder. Rather, appellant solves this flow problem by utilizing the technique of simultaneously spray-drying through separate nozzle systems in one spray-drying tower one detergent slurry having an active detergent content that is primarily if not exclusively anionic and another detergent slurry having an active detergent content that is primarily if not exclusively nonionic. Although simultaneous spray-drying of multiple slurries did not originate with appellant, on this record he appears to have been the first to utilize this technique with slurries having different active detergent contents, one being primarily if not exclusively anionic in nature and the other being primarily if not exclusively nonionic in nature, in order to improve the flow characteristics of the final mixed-active product.

[3] In the past, simultaneous spray-drying of multiple slurries was limited to the production of multicolor detergents wherein the specific active detergent content of the slurries was beside the point. [FN9] We conclude that the problem of how to introduce more than one color into a detergent and the problem of how to improve the flow characteristics of a mixed-active detergent are quite remote. Mere knowledge that simultaneous spray-drying multiple slurries was a useful technique in the production of multi-colored detergents would not have suggested anything about the effect of simultaneous spray-drying slurries having different active detergent contents, one being primarily if not exclusively anionic in *1074 nature and the other being primarily if not exclusively nonionic in nature, on the flow characteristics of the final mixed-active product. Consequently, one skilled in this art, working at the time appellant's invention was made on the problem of how to obtain good flow characteristics in mixed-active spray-dried

detergents without resort to partially pre-hydrated sodium tripolyphosphate builder, would not have been motivated or guided by the prior art to arrive at the process appellant is claiming in claim 5, that is, a process for making a mixed-active detergent wherein the flow characteristic problem is solved by resort to the simultaneous spray-drying technique heretofore only used in the production of multi-colored detergents. For this reason, we hold that the process described in claim 5, considered as a whole as required by 35 USC 103, would not have been prima facie obvious to one skilled in the art at the time this invention was made. Cf. In re Sponnoble, 56 CCPA 823, 405 F.2d 578, 160 USPQ 237 (1969); In re Kuehl, 475 F.2d 658, 177 USPQ 250 (CCPA 1973).

Accordingly, the decision of the board is *affirmed* with regard to claims 2-4, 9 and 14, and *reversed* as to claim 5.

Modified.

FN1 The Honorable Bernard Newman, United States Customs Court, sitting by designation.

FN1 An anionic substance is one which is negatively charged.

FN2 A nonionic substance is one which is electrically neutral, that is, it does not have either a positive or negative charge.

FN3 A slurry is a watery mixture or suspension of insoluble matter.

FN4 Canadian patent to Coffey, Griffiths, and Naylor, No. 852173, issued September 22, 1970, for "Process for the Production of Detergent Compositions."

FN5 U.S. patent to Cavataio and Monick, No. 3,519,054, issued July 7, 1970, for "Process for Producing a Particulate Product."

FN6 U.S. patent to Tofflemire, No. 3,357,476, issued December 12, 1967, for "Process and Apparatus for Spray Drying Multi-Colored Detergent Particles."

FN7 British patent specification of Colgate-Palmolive Company, No. 931,438, published July 17, 1963, for "Solid Detergent Composition."

FN8 U.S. patent to Ruff, No. 2,861,954, issued November 25, 1958, for "Polyphosphate Compositions Containing Soap and 2-Mercaptothiazoline."

FN9 Although Cavataio implies that the colored slurry could be different from the matrix slurry composition-wise, nowhere does he teach or even hint at the particular difference here claimed, i.e., that the slurries have different active detergent contents, one being primarily if not exclusively anionic in nature and the other being primarily if not exclusively nonionic in nature. In point of fact, Cavataio's only illustration of this point is an example wherein one slurry contains none of the active detergent material.

Miller, Judge, with whom Markey, Chief Judge, joins, dissenting in part.

I cannot agree that the rejection of claim 5, which requires simultaneous spray-drying and mixing of two conventional detergent slurries, should be reversed. The majority opinion recognizes that the motivation for one of ordinary skill in the art to mix the dried detergents together after independent spray-drying follows logically from the prior art. *In re Susi* and *In re Crockett*, both cited in the majority opinion. Nevertheless, it concludes that mixing them during *simultaneous* spray-drying would have been beyond the level of ordinary skill in the detergent-making art, even though, as the majority opinion recognizes, simultaneous spray-drying of multiple slurries is a conventional process in that art. [FN1]

How or why such mixing would have been beyond the level of ordinary skill in the art is not explained except by the statement that there would have been no motivation therefor, because the prior art simultaneous spray-drying technique had only been used in the production of multicolored detergents. However, this position is untenable, because Cavataio et al. teach that two detergent slurries to be simultaneously spray-dried can be of *different compositions* as well as of different colors. [FN2] Thus, motivation to use *any* two conventional slurries (having different active detergent contents) in the Cavataio et al. process would have been provided one of ordinary skill in the art, and a prima facie case of obviousness is established.

The majority opinion's reversal of the rejection of claim 5 clearly relies upon its conclusion that appellant "solves this flow problem" (the "sticky and poor flow properties" of detergent compositions related by Coffey), accepting as fact that appellant's process produces detergents "with good flow characteristics." However, in affirming the rejection of all the other claims, the majority opinion does not accept appellant's "good flow characteristics" test data as sufficient to rebut a prima facie case of obviousness. Moreover, it does not necessarily follow that a product possessing nonobvious properties renders a process for making that product nonobvious. As Judge Rich explained in his concurring opinion in *In re Larsen*, 49 CCPA 711, 716-17, 292 F.2d 531, 534-36, 130 USPQ 209, 212-13 (1961):

[I]f it be the fact that the final compound AB possesses unique, unexpected, surprising, or highly useful properties, they *inhere* in the product AB, not in A alone, B alone, or in the process of reacting them. While such attributes in a product may make it, the product, patentable they do not make the process patentable because they are in no way a part of the process. * * * There is a certain amount of logic in holding a product to be unobvious *1075 because of the discovery in it of unobvious properties * * *. But I see neither logic nor sound interpretation of the patent law in transferring such properties from the product in which they inhere to a process of making the product in which they do not.

See *In re Hoeksema*, 51 CCPA 1474, 1478, 332 F.2d 374, 377, 141 USPQ 733, 735-36 (1964), pointing out:

In *In re Larsen* * * * this court held a process to be obvious although it produced a product which, because of its unexpected properties, was unobvious.

See *In re Kuehl*, 475 F.2d 658, 665, 177 USPQ 250, 255-56 (1973), in which the unanimous opinion by Judge Roth points out that "each statutory class of claims must be considered independently on its own merits" and that "an applicant does not get such [process] claims just because the product is new and unobvious." Appellant's citation of *In re Spornoble*, 56 CCPA 823, 405 F.2d 578, 160 USPQ 237 (1969), is not apt, because the appealed claim with a limitation directed to the solution of a problem.

Although the manufacture of detergents may involve chemical reactions in process steps, claim 5 involves merely the physical process of simultaneously spray-drying two known slurries, and there is no indication that a chemical reaction occurs in the spray-drying tower. Accordingly, the uncertainty and unpredictability often associated with the chemical arts is not present here.

With respect to appellant's claim limitation that the nozzles be located at a "substantially equal height level of the tower," Cavataio et al. disclose that the point of entry of the second liquid can be as close as 15% "below the level of the point of entry of the first liquid, the percentage based on the distance from the bottom of the spray tower to the point of entry of the first liquid."

Moreover, the Tofflemire reference (U.S. Patent 3,357,476) expressly discloses the simultaneous spray drying of two different detergents (one colored, the other not colored) at the same height. I would hold that the Patent and Trademark Office has established a prima facie case of

obviousness of claim 5 and that this has not been rebutted by appellant's comparative test data, the same not being commensurate in scope with the claim, as clearly pointed out in the majority opinion.

FN1 The majority opinion says that appellant appears to have been the first to utilize simultaneous spray-drying with slurries having different active detergent contents, but, at oral argument, counsel for appellant stated that it made no difference whether the compositions were separately dried before mixing or simultaneously dried and mixed.

FN2 Cavataio et al. state that "both the matrix and the contrasting colored liquid are in the form of slurries which contain the necessary components for a complete detergent composition." The majority opinion offers no reason for limiting this teaching of Cavataio et al. to the specific slurry compositions used in their several examples.

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